



## INTERNATIONAL SEARCH REPORT

PCT/KR02/01951

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|--|--|---|
| <b>A. CLASSIFICATION OF SUBJECT MATTER</b>   |  |   |
| IPC7 C01F 7/02, B82B 1/00, B82B 3/00   |  |   |
| According to International Patent Classification (IPC) or to both national classification and IPC  |  |   |
| <b>B. FIELDS SEARCHED</b>  |  |   |
| Minimum documentation searched (classification system followed by classification symbols)  |  |   |
| IPC7 C01F 7/02, B82B 1/00, B82B 3/00   |  |   |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  |  |   |
| Korean Patents and Applications for Inventions since 1975  |  |   |
| Korean Utility Models and Applications for Utility Models since 1975   |  |   |
| Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)   |  |   |
| NPS, IPN, PAJ, Delphion, CA  |  |   |
| <b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>  |  |   |
| Category*  | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No.   |
| O. X.  | Theories and Applications of Chem. Eng.(2002. 4. 26.), Vol. 8. No. 1. Pages 305-308, Jae Sung Lee et al "Synthesis and Characterization of Mesoporous Alumina Molecular Sieves."(by Korean Language)   | 1-12  |
| O. X.  | Bulletin of The Korean Physical Society(2002. 4. 19.) Pages 12, 97, Jae Sung Lee et al "Surfactant driven synthesis of pure and Lithium inseted alumina nanotubes."  | 13-33   |
| O. X.  | The 1st Symposium for Nano-chemical Processing & The 4th CVD Symposium(2002. 6.20.) Pages 90-92, Jae Sung Lee et al "Surfactant-Driven Synthesis of Individual Alumina Nanotubes and Bundles of Lithium Aluminate Subnanotubules High Hydrogen and Storage Capacity and Lithium Ion Mobility." | 20-33   |
| X  | Angew. Chem., Int. Ed. Engl.,(1996), 35(10), Pages 1102-1105, Bagshaw, Stephen A. et al "Mesoporous alumina molecular sieves."   | 1-19  |
| A  | Angew. Chem., Int. Ed. Engl.,(2001), 40(8), Pages 1490-1493, Pu, Lin et al "Individual alumina nanotubes."   | 1-33  |
| <input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.   |  |   |
| * Special categories of cited documents:<br>"A" document defining the general state of the art which is not considered to be of particular relevance<br>"E" earlier application or patent but published on or after the international filing date<br>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)<br>"O" document referring to an oral disclosure, use, exhibition or other means<br>"P" document published prior to the international filing date but later than the priority date claimed<br>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention<br>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone<br>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art<br>"&" document member of the same patent family |  |   |
| Date of the actual completion of the international search  |  | Date of mailing of the international search report  |
| 16 MAY 2003 (16.05.2003)   |  | 19 MAY 2003 (19.05.2003)  |
| Name and mailing address of the ISA/KR<br> Korean Intellectual Property Office<br>920 Dunsan-dong, Seo-gu, Daejeon 302-701,<br>Republic of Korea<br>Facsimile No. 82-42-472-7140  |  | Authorized officer<br>CHO, Sung Shin<br>Telephone No. 82-42-481-5564<br> |

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR02/01951

| C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT |  |                       |
|---|--|-----------------------|
| Category*   | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
| A   | Chem.-Eur. J.(1997), 3(12), Pages 1951-1956, Hornyak, Gabor et al "Gold clusters and colloids in alumina nanotubes."   | 1-33                  |
| A   | Chem. Commun.(Cambridge),(1998), (11), Pages 1185-1186, Zhang, Wenzhong et al "Rare earth stabilization of mesoporous alumina molecular sieves assembled through an NOIO pathway." | 1-12                  |
| A   | Microporous and Mesoporous Materials(2002), 52(3), Pages 169-177, Deng, W. et al "Characterization of mesoporous alumina molecular sieves synthesized by nonionic templating."     | 1-12                  |
| A   | JP 2001-205600 A(Canon Inc., Japan) 31. Jul. 2001., see the paragraphs [0043] -[0073]  | 13-20                 |
| A   | Applied Physics Letters(2002), 80(6), Pages 1079-1081, Zou, Jianping et al "Branchy alumina nanotubes."  | 13-20                 |
| A   | Science(2002), 296(5575), Pages 1997-1998, Steinhart, M. et al "Polymer nanotubes by wetting of ordered porous templates."   | 13-20                 |
| A   | Chemical Physics Letters(2002), 360(5/6), Pages 579-584, Zhang, Yingjiu et al "Synthesis of alumina nanotubes using carbon nanotubes as templates."                                | 13-20                 |



- as to non-prejudicial disclosures or exceptions to lack of novelty (Rule 4.17(v)) for all designations
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